

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently amended): A magnetic actuator including a mobile magnetic portion (20), a fixed magnetic portion (10) provided with at least two attraction areas (11, 12) for the mobile magnetic portion (20), and means (30) for triggering the displacement of the mobile magnetic portion (20), the mobile magnetic portion (20) being in levitation when it is not in contact with an attraction area (11, 12), characterized in that the mobile magnetic portion (20) includes a magnet-based part (200) with reduced magnet weight, this part (200) having an overall volume in which the reduced magnet weight occurs, and a mass, the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet, the magnet-based part (200) having edges which are facing both attraction areas, said edges being spared by the reduced magnet weight.

Claim 2 (Original): The magnetic actuator according to claim 1, characterized in that the part (200) with reduced magnet weight includes one or more magnets (22, 24, 26) provided with at least one recess (21, 27).

Claim 3 (Original): The magnetic actuator according to claim 2, characterized in that the recess (21) is a through hole.

Claim 4 (Previously presented): The magnetic actuator according to claim 2, characterized in that the recess (21) is filled with a solid material (25) with lesser density, less than that of the magnet (24).

Claim 5 (Original): The magnetic actuator according to claim 4, characterized in that the lesser density solid material is selected from semiconducting material, plastic material, soft magnetic material, dielectric material.

Claim 6 (Previously presented): The magnetic actuator according to claim 2, characterized in that the recess (21) is empty of solid material.

Claim 7 (Previously presented): The magnetic actuator according to claim 1, characterized in that the part (200) with reduced magnet weight is a substantially rectangular plate.

Claim 8 (Previously presented): The magnetic actuator according to claim 1, characterized in that the part (200) with reduced magnet weight includes a magnet frame (24).

Claim 9 (Withdrawn): The magnetic actuator according to claim 1, characterized in that the part (200) with reduced magnet weight includes in the direction of the displacement, a succession of magnets (26) spaced apart from each other, these magnets (26) having a same magnetization orientation.

Claim 10 (Withdrawn): The magnetic actuator according to claim 1, characterized in that the part (200) with reduced magnet weight includes in the direction of the displacement, an alternating succession of magnets (26) and of at least one solid portion (27) of lesser density.

Claim 11 (Withdrawn): The magnetic actuator according to any of claims 9 or 10, characterized in that the magnets (26) are in the form of orientated bars substantially normal to the displacement.

Claim 12 (Withdrawn): The magnetic actuator according to any of claims 9 or 10, characterized in that the succession includes a magnet (26) at each end.

Claim 13 (Withdrawn): The magnetic actuator according to claim 12, characterized in that the end magnets (26) have a dimension in the direction of the displacement, substantially equal to the displacement.

Claim 14 (Withdrawn): The magnetic actuator according to any of claims 9 or 10, characterized in that the means (30) for triggering the displacement include at least one conductor (30) arranged as a meander formed with sections (30.1, 30.2) of successive conductors wherein a current is able to flow in opposite directions, each of the magnets (26) of the succession, when the mobile magnetic portion (20) is stuck on the attraction area (11, 12), cooperating with one of the sections (30.1 or 30.2), the current flowing in the same direction in these sections.

Claim 15 (Canceled)

Claim 16 (Withdrawn): The magnetic actuator according to claim 1, characterized in that the mobile magnetic portion (20) includes at least one face (201a), which must come and stick on an attraction area (11, 12), this face (201a) being curved.

Claim 17 (Withdrawn): The magnetic actuator according to claim 1, characterized in that the mobile magnetic portion (20) includes at least one face (205) which must come and stick on an attraction area (11, 12), this face being arranged as a zigzag.

Claim 18 (Previously presented): The magnetic actuator according to claim 1, characterized in that each attraction area (11, 12) has a geometry conjugate to that of the face (201a,

205) of the mobile magnetic portion (20) which must come into contact with it.

Claim 19 (Previously presented): The magnetic actuator according to claim 1, characterized in that at least one of the attraction areas (11) includes a dielectric portion (111) so as to achieve capacitive contact when the mobile magnetic portion (20) is stuck on said attraction area.

Claims 20-28 (Canceled)

Claim 29 (Currently amended): A magnetic actuator, comprising:
a mobile magnetic portion including a magnet-based part with reduced magnet weight, the reduced magnet weight magnet-based part having an overall volume in which the reduced magnet weight occurs, and a mass, the mass of the reduced magnet weight part is less than the mass of a part having the same overall volume and whose overall volume is totally occupied by the magnet;

a fixed magnetic portion provided with at least two attraction areas for the mobile magnetic portion, and

means for triggering the displacement of the mobile magnetic portion, the mobile magnetic portion being in levitation when it is not in contact with one of the attraction areas,

wherein the magnet-based part includes an edge that faces one of the attraction areas and another edge that faces another one of the attraction areas, and the magnet-based part is reduced in weight in a portion that is spaced away from said edges.